

# Sample Programs-1

August 26, 2019

Print Hello World!

```
In [1]: print("Hello World!")
```

Hello World!

Program to add two numbers

```
In [40]: # This program adds two numbers
num1 = int(input("Enter the 1st number: "))
num2 = int(input("Enter the 2nd number: "))
# Add two numbers
sum = float(num1) + float(num2)
# Display the sum
print('The sum of {0} and {1} is {2}'.format(num1, num2, sum))
```

Enter the 1st number: 20

Enter the 2nd number: 30

The sum of 20 and 30 is 50.0

Program to find the area of a triangle

```
In [1]: # Uncomment below to take inputs from the user
a = float(input('Enter first side: '))
b = float(input('Enter second side: '))
c = float(input('Enter third side: '))

# calculate the semi-perimeter
s = (a + b + c) / 2

# calculate the area
area = (s*(s-a)*(s-b)*(s-c)) ** 0.5
print('The area of the triangle is %0.2f' %area)
```

Enter first side: 10

Enter second side: 10

Enter third side: 10

The area of the triangle is 43.30

Program to find the roots of a quadratic equation :  $ax^2 + bx + c = 0$

```
In [6]: import cmath
a = float(input('Enter the value of a: '))
b = float(input('Enter the value of b: '))
c = float(input('Enter the value of c: '))

# calculate the discriminant
d = (b**2) - (4*a*c)

# find two solutions
sol1 = (-b-cmath.sqrt(d))/(2*a)
sol2 = (-b+cmath.sqrt(d))/(2*a)

print('The solution are {0} and {1}'.format(sol1,sol2))
```

```
Enter the value of a: 1
Enter the value of b: 5
Enter the value of c: -6
The solution are (-6+0j) and (1+0j)
```

Program to swap the given two numbers

```
In [ ]: x = int(input('Enter first value of : '))
y = int(input('Enter second value of: '))
print('The values of the entered numbers before swapping: {0} and {1}'.format(x,y))
# create a temporary variable and swap the values
temp = x
x = y
y = temp
# without using temporary variable
#x = x+y
#y = x-y
#x = x-y
# in a single statement
#x,y = y, x
print('The values of the entered numbers after swapping: {0} and {1}'.format(x,y))
```

Program to Check Leap Year

```
In [19]: year = int(input("Enter a year: "))

if (year % 4) == 0:
    if (year % 100) == 0:
        if (year % 400) == 0:
            print("\n{0} is a leap year".format(year))
        else:
            print("\n{0} is not a leap year".format(year))
```

```

        else:
            print("\n{0} is a leap year".format(year))
    else:
        print("\n{0} is not a leap year".format(year))

```

Enter a year: 2004

2004 is a leap year

### Program to Convert Celsius To Fahrenheit

```
In [21]: celsius = float(input("Enter a temperature in celsius: "))
```

```

    # calculate fahrenheit
    fahrenheit = (celsius * 1.8) + 32
    print('%0.1f degree Celsius is equal to %0.1f degree Fahrenheit' %(celsius,fahrenheit))

```

Enter a temperature in celsius: 37.5

37.5 degree Celsius is equal to 99.5 degree Fahrenheit

### Program to convert decimal number into binary, octal and hexadecimal number

```
In [23]: dec = int(input("Enter the decimal number to convert: "))
```

```

    print("The decimal value of",dec,"is:")
    print(bin(dec),"in binary.")
    print(oct(dec),"in octal.")
    print(hex(dec),"in hexadecimal.")

```

Enter the decimal number to convert: 36

The decimal value of 36 is:

0b100100 in binary.

0o44 in octal.

0x24 in hexadecimal.

### Check Whether a String is Palindrome or Not

```
In [25]: # change this value for a different output
my_str = input("Enter the decimal number to convert: ")
```

```

    # make it suitable for caseless comparison
    my_str = my_str.casefold()

```

```

    # reverse the string
    rev_str = reversed(my_str)

```

```
# check if the string is equal to its reverse
if list(my_str) == list(rev_str):
    print("It is a palindrome")
else:
    print("It is not a palindrome")
```

Enter the decimal number to convert: Madam  
It is a palindrome

Program to check the entered number is prime or not

```
In [39]: num = int(input("Enter a number: "))

if num > 1:
    for i in range(2,num):
        if (num % i) == 0:
            print(num,"is not a prime number")
            print(i,"times",num//i,"is",num)
            break
        else:
            print(num,"is a prime number")

else:
    print(num,"is not a prime number")
```

Enter a number: 8  
8 is not a prime number  
2 times 4 is 8